

LIST OF CONTENTS

NUMBER 1

Special Issue
Applied Mathematics for Industrial Flow Problems

Guest Editor
M. Deville

M. Deville	1	Editorial
C. Farhat, P. Geuzaine and G. Brown	3	Application of a three-field nonlinear fluid-structure formulation to the prediction of the aeroelastic parameters of an F-16 fighter
A. Cohen, S. M. Kaber and M. Postel	31	Adaptive multiresolution for finite volume solutions of gas dynamics
I. Hörschler, M. Meinke and W. Schröder	39	Numerical simulation of the flow field in a model of the nasal cavity
A. Jannelli, R. Fazio and D. Ambrosi	47	A 3D mathematical model for the prediction of mucilage dynamics
C. Michler, H. De Sterck and H. Deconinck	59	An arbitrary Lagrangian Eulerian formulation for residual distribution schemes on moving grids
E. Miglio, A. Quarteroni and F. Saleri	73	Coupling of free surface and groundwater flows
A. J. Nowak, R. A. Białecki, A. Fic and G. Weceł	85	Analysis of fluid flow and energy transport in Czochralski's process
F. Sarghini, G. de Felice and S. Santini	97	Neural networks based subgrid scale modeling in large eddy simulations
R. Schwane	109	A multi-dimensional solver for the steady Euler equations
X. Wang	121	Instability analysis of some fluid-structure interaction problems
I. Wenneker, A. Segal and P. Wesseling	139	Conservation properties of a new unstructured staggered scheme

NUMBER 2

Z. Li, I. M. Navon, M. Y. Hussaini and F.-X. Le Dimet	149	Optimal control of cylinder wakes via suction and blowing
C.-D. Munz, S. Roller, R. Klein and K. J. Geratz	173	The extension of incompressible flow solvers to the weakly compressible regime

- | | | |
|--------------------------------------|-----|---|
| T. F. Miller and D. J. Miller | 197 | A Fourier analysis of the IPSA/PEA algorithms applied to multiphase flows with mass transfer |
| H. Jasak and A. D. Gosman | 223 | Element residual error estimate for the finite volume method |
| M. Mossi and P. Sagaut | 249 | Numerical investigation of fully developed channel flow using shock-capturing schemes |
| M. Xie, W. Sun and F. Li | 275 | Study on the rapid pressure-strain rate in the second-moment closure for turbulent flows undergoing strong compression and large distortion |

NUMBER 3

- | | | |
|--|-----|--|
| Y. Lian, J. Steen, M. Trygg-Wilander and W. Shyy | 287 | Low Reynolds number turbulent flows around a dynamically shaped airfoil |
| M. B. Liu, G. R. Liu, Z. Zong and K. Y. Lam | 305 | Computer simulation of high explosive explosion using smoothed particle hydrodynamics methodology |
| L. Tang and J. D. Baeder | 323 | A two-step grid redistribution method |
| Y.-F. Peng, Y.-H. Shiau and R. R. Hwang | 337 | Transition in a 2-D lid-driven cavity flow |
| M. Turkyilmazoglu | 353 | Instability of the flow in the vicinity of trailing edge of a class of thin aerofoils |
| C. O. E. Burg and J. C. Newman III | 373 | Computationally efficient, numerically exact design space derivatives via the complex Taylor's series expansion method |
| L. K. Forbes and G. C. Hocking | 385 | On the computation of steady axi-symmetric withdrawal from a two-layer fluid |
| D. G. Koubogiannis, A. N. Athanasiadis and K. C. Giannakoglou | 403 | One- and two-equation turbulence models for the prediction of complex cascade flows using unstructured grids |
| I. Raspo | 431 | A direct spectral domain decomposition method for the computation of rotating flows in a T-shape geometry |

NUMBER 4

- | | | |
|--|-----|---|
| R. M. A. Marretta and G. Tassone | 457 | A vorticity based aeroacoustic prediction for the noise emission of a low-speed turbulent internal flow |
| T. Gallouët, J.-M. Hérard and N. Seguin | 479 | Some approximate Godunov schemes to compute shallow-water equations with topography |

- | | | |
|---|-----|---|
| M.-C. Druguet and
D. E. Zeitoun | 515 | Influence of numerical and viscous dissipation on shock wave reflections in supersonic steady flows |
| S. Aliabadi, A. Johnson and
J. Abedi | 535 | Comparison of finite element and pendulum models for simulation of sloshing |
| O. Gloth, D. Hänel, L. Tran
and R. Vilsmeier | 547 | A front tracking method on unstructured grids |
| R. Abgrall, B. Nkonga and
R. Saurel | 571 | Efficient numerical approximation of compressible multi-material flow for unstructured meshes |
| A. Dadone and B. Grossman | 607 | Fast convergence of inviscid fluid dynamic design problems |

NUMBER 5

- | | | |
|--|-----|--|
| | 629 | Publisher's Announcement |
| C. L. Rumsey,
E. M. Lee-Rausch
and R. D. Watson | 631 | Three-dimensional effects in multi-element high lift computations |
| T. Du, J. Shi and Z.-N. Wu | 659 | Mixed analytical/numerical method for flow equations with a source term |
| V. Theofilis, A. Karabis and
S. J. Shaw | 691 | Complex-grid spectral algorithms for inviscid linear instability of boundary-layer flows |
| W. S. Oh, J. S. Kim and
O. J. Kwon | 727 | Time-accurate Navier-Stokes simulation of vortex convection using an unstructured dynamic mesh procedure |
| Y. Morinishi, S. Tamano and
K. Nakabayashi | 751 | A DNS algorithm using B-spline collocation method for compressible turbulent channel flow |

NUMBER 6

- | | | |
|--|-----|--|
| Y. Gu, Y. C. Zhou and
G. W. Wei | 777 | Conjugate filters with spectral-like resolution for 2D incompressible flows |
| Y.-C. Chen and J. N. Chung | 795 | A direct numerical simulation of transition phenomena in a mixed convection channel flow |
| T. Watanabe and K. Ebihara | 823 | Numerical simulation of coalescence and breakup of rising droplets |
| A. J. Toreja and
Rizwan-uddin | 835 | Hybrid numerical methods for convection-diffusion problems in arbitrary geometries |
| R. S. Montero, I. M. Llorente
and M. D. Salas | 873 | Semicoarsening smoothers for the simulation of a flat plate at yaw |
| H. Paillère, C. Corre and
J. R. García Cascales | 891 | On the extension of the AUSM+ scheme to compressible two-fluid models |

NUMBER 7

- | | | |
|--|------|--|
| D. J. Lucia, P. I. King and P. S. Beran | 917 | Reduced order modeling of a two-dimensional flow with moving shocks |
| M.-S. Park, Y.-R. Jung and W.-G. Park | 939 | Numerical study of impact force and ricochet behavior of high speed water-entry bodies |
| P. S. B. Zdanski, M. A. Ortega and N. G. C. R. Fico Jr. | 953 | Numerical study of the flow over shallow cavities |
| F. L. Ponta and P. M. Jacovkis | 975 | Constant-curl Laplacian equation: a new approach for the analysis of flows around bodies |
| Y. J. Moon, Y. Cho and H.-S. Nam | 995 | Computation of unsteady viscous flow and aero-acoustic noise of cross flow fans |
| D. Borello, A. Corsini and F. Rispoli | 1017 | A finite element overlapping scheme for turbomachinery flows on parallel platforms |

NUMBER 8

- | | | |
|--|------|---|
| S. Rungsiyaphornrat, E. Klaseboer, B. C. Khoo and K. S. Yeo | 1049 | The merging of two gaseous bubbles with an application to underwater explosions |
| H. Brandén and S. Holmgren | 1075 | Convergence acceleration for the steady-state Euler equations |
| W. Kress and J. Nilsson | 1093 | Boundary conditions and estimates for the linearized Navier-Stokes equations on staggered grids |
| D. R. van der Heul, C. Vuik and P. Wesseling | 1113 | A conservative pressure-correction method for flow at all speeds |
| J.-S. Wu and Y.-Y. Lian | 1133 | Parallel three-dimensional direct simulation Monte Carlo method and its applications |
| V. Martínez and A. Marquina | 1161 | Computation of travelling wave solutions of scalar conservation laws with a stiff source term |

NUMBER 9

- | | | |
|--|------|--|
| K.-H. Wang, Q. Shen and B. Zhang | 1179 | Modeling propagation of pressure surges with the formation of an air pocket in pipelines |
| C. Wang, B. C. Khoo and K. S. Yeo | 1195 | Elastic mesh technique for 3D BIM simulation with an application to underwater explosion bubble dynamics |
| A. Dagan | 1213 | Numerical consistency and spurious boundary layer in the projection method |

- | | | |
|--|------|---|
| A. Bouhadji and M. Braza | 1233 | Organised modes and shock-vortex interaction in unsteady viscous transonic flows around an aerofoil Part I: Mach number effect |
| A. Bouhadji and M. Braza | 1261 | Organised modes and shock-vortex interaction in unsteady viscous transonic flows around an aerofoil Part II: Reynolds number effect |
| F. Gürçan | 1283 | Effect of the Reynolds number on streamline bifurcations in a double-lid-driven cavity with free surfaces |
| L. Tashman, E. Masad, C. Crowe and B. Muhunthan | 1299 | Simulation of fluid flow in granular microstructure using a non-staggered grid scheme |

NUMBER 10

- | | | |
|---|------|---|
| C. D. Simonsen and F. Stern | 1325 | Verification and validation of RANS maneuvering simulation of Esso Osaka: effects of drift and rudder angle on forces and moments |
| Q. Li and S. Fu | 1357 | Numerical simulation of high-speed planar mixing layer |
| Y.-X. Ren | 1379 | A robust shock-capturing scheme based on rotated Riemann solvers |
| H. Niazmand and M. Renksizbulut | 1405 | Surface effects on transient three-dimensional flows around rotating spheres at moderate Reynolds numbers |
| L. J. De Chant, J. A. Seidel and T. R. Kline | 1435 | Extension of a combined analytical/numerical initial value problem solver for turbulent mixing with combustion |
| C. Duchanoy and T. R. G. Jongen | 1453 | Efficient simulation of liquid-solid flows with high solids fraction in complex geometries |
| G. Billet and R. Abgrall | 1473 | An adaptive shock-capturing algorithm for solving unsteady reactive flows |
| S. Evje and K. K. Fjelde | 1497 | On a rough AUSM scheme for a one-dimensional two-phase model |



